WHAT IS CLAIMED:

1. An implantable prosthesis having improved mechanical and chemical properties comprising:

a radiation resistant and hydrolytically stable biocompatible fabric having inner and outer surfaces and first and second ends;

said fabric having a textile construction of a plurality of polymeric filaments comprising a naphthalene dicarboxylate derivative.

2. The implantable prosthesis of claim 1 wherein said fabric is polyethylene naphthalate.

3. The implantable prosthesis of claim 1 wherein said fabric is selected from the group consisting of poly(ethylene naphthalate), poly(propylene naphthalate), polytrimethylene naphthalate, trimethylenediol naphthalate, poly(iso-propylene naphthalate), poly(n-butylene naphthalate), poly(iso-butylene naphthalate), poly(tert-butylene naphthalate), poly(n-pentylene naphthatate), poly(n-hexylene naphthalate), and combinations and derivatives thereof.

4. The implantable prosthesis according to claim 1 wherein said textile construction is selected from the group consisting of weaves, knits, braids, filament windings or spun filament.

5. The implantable prosthesis according to claim 1 wherein said implantable prosthesis is a vascular graft

6. The implantable prosthesis according to claim 1 wherein said implantable prosthesis is an endovascular graft.

7. The implantable prosthesis according to claim 1 wherein said implantable prosthesis is selected from the group consisting of a balloon catheter, filter, mesh, vascular patch, hernia plug and arterial-vascular access graft.

8. The implantable prosthesis according to claim 1 further including a coating.

9. The implantable prosthesis according to claim 1, wherein the polymeric filaments have about 20 to about 100 filaments.

10. The implantable prosthesis according to claim 1, wherein the polymeric filaments have a denier from about 20 to about 1500.

11. An implantable prosthesis having improved mechanical and chemical properties comprising:

a radiation resistant and hydrolytically stable biocompatible tubular fabric of a textile construction,

said fabric having a plurality of yarns selected from the group consisting of polyethylene naphthalate, polybutylene naphthalate and combinations thereof.

12. The implantable prosthesis according to claim 11 wherein said implantable prosthesis is a intraluminal prosthesis.

13. The implantable prosthesis according to claim 11 wherein said implantable prosthesis is an endovascular graft.

14. The implantable prosthesis according to claim 11 further including a radially deformable support component.

15. The implantable prosthesis according to claim 14 wherein said support component is a radially deformable stent.

16. The implantable prosthesis according to claim 14 wherein said tubular fabric is radially adjustable in the body having circumferentially-extending yarns selected from the group consisting of undrawn, partially drawn yarns and combinations thereof which allow said component following implantation to undergo controlled inelastic radial expansion upon application thereto of a preselected radial force.

17. Method for making a radiation and thermal resistant and hydrolytically stable, steam sterilizable biocompatible prosthesis comprising:

a) providing a fabric having an inner and outer surface and first and second ends, said fabric having a plurality of polymeric filaments comprising a naphthalene dicarboxylate derivative;

b) selecting a textile construction pattern; and

c) forming said prosthesis in accordance with a textile construction pattern.

18. Implantable prosthesis comprising a fabric having improved chemical and mechanical properties formed by the process comprising:

a) providing a fabric having an inner and outer surface and first and second ends, said fabric having a plurality of polymeric filaments comprising a naphthalene dicarboxylate derivative;

b) selecting a textile construction

c) forming said prosthesis in accordance with a textile pattern; and

d) steam sterilizing said prosthesis.